02- SC 1006
Portfolio Sequence Number

APPENDIX T.1
Portfolio Class Profile Form

DIRECTIONS: Photocopy or download this form and fill it out completely. INCLUDE IT AS THE **COVER PAGE** (first page) of your portfolio.

1. Portfolio school and grade level: ☐ **ELEMENTARY** ☒ **MIDDLE SCHOOL**
☐ **HIGH SCHOOL** ☐ **SPECIAL EDUCATION FACILITY**

Grade level(s) in your portfolio class: pre-k k 1 2 3 4 5 (6) 7 8 9 10 11 12
(Circle all that apply)

2. Portfolio content area *(check appropriate boxes)*:

ELEMENTARY ☐

ENGLISH LANGUAGE ARTS ☐

MATHEMATICS ☐

MUSIC ☐ Choral ☐ Instrumental

PHYSICAL EDUCATION ☐

SCIENCE ☒ General ☐ Biology ☐ Chemistry ☐ Physics ☐ Earth

SOCIAL STUDIES ☐ World History ☐ U.S. History ☐ Geography
☐ Ancient Civilizations ☐ Other

SPECIAL EDUCATION ☐ Language Arts ☐ Mathematics

VISUAL ARTS ☐ Drawing/Painting ☐ Ceramics ☐ Photography
☐ Printmaking ☐ Sculpture

WORLD LANGUAGES ☐ French ☐ Spanish ☐ Italian ☐ Other

3. Portfolio Teaching Topic/Unit Title: Wonderful Earthworms

4. Number of minutes per class: 45

5. Total number of students in class: 22
# of boys 10 # of girls 12 # of ESL students 1 # of special education students ____

6. Primary texts used in portfolio class, if applicable. *(Please provide title, author/publisher, and date of publication of all textbooks)*

_____

_____

(Note: If elementary education teacher, please provide this information for both literacy and numeracy instruction)

7. Number of other adults in the room during portfolio instruction:

Indicate all that apply ☐ paraprofessional ☐ co-teacher ☐ parent volunteer ☐ other

APPENDIX T.2
Science Portfolio Unit Overview

Course General Science Grade level Sixth Grade

Unit's Essential Question:

Why are earthworms important? Knowing structure and function, what are the earthworm's needs and adaptations for their environment? How can earthworms be used to address the problem of excess waste in society?

Lesson Date	Lesson's Main Concept/s	Students' Main Learning Activities
31 January 2002	Identify students' knowledge, misconceptions, and questions they have about earthworms.	*Wondering about Worms,* KW Chart on what students' know and what they want to know about earthworms. Class discussion about chart.
1 February 2002	Facilitate comfort level with working with earthworms. Describe physical characteristics of earthworms. Discover behaviors of earthworms.	Students observe earthworms and complete: *Wonderful Worms Observation Sheet* *Worm Observation Lab*
4 February 2002	Review earthworm characteristics and behaviors. Explain worm internal anatomy	Large group discussion of Observation Lab View worm on transparency & Wilma Note taking on *Diagrams of Earthworm Anatomy* Homework is to create a poster illustrating all body systems in one worm
5 February 2002	Identify positive, negative, and interesting information about vermicomposting	Student Council Proposal Small group research using internet resources Recording information on sheet, Are *Earthworms the Solution?*
6 February 2002	Recommend Vermicomposting to be beneficial for the school food waste problem.	Student representative lead, class discussion, assessing whether vermicomposting could be a positive or negative solution for recycling food waste.

7 February 2002	Discover and explain best conditions for a healthy and productive worm bin.	Student participation in *Worm Experiment #1.* Do worms prefer damp or dry? Class discussion of results
8 February 2002	Discover and explain best conditions for a healthy and productive worm bin.	Student participation in *Worm Experiment #2.* Do worms prefer light or dark? Class discussion of results
11 February 2002	Discover and explain best conditions for a healthy and productive worm bin.	Student design and participate in *Worm Experiment #3.* Do worms prefer warm or cool temperatures? Class discussion of results Homework is to type formal lab report Research internet resources for more information about maintaining a vermicomposting bin. Record and discuss information on sheet, *Best Environment for Worm Bins*
12 February 2002	Identify materials for worm bin Synthesize the unit	Small groups make worm bins Homework is *Letter to the Student Council*
13 February 2002	Evaluate student learning	*Earthworm Quiz*

Introduction to the Portfolio Unit

My sixth grade students will participate in a hands-on inquiry unit in which they will explore three essential questions related to the topic of earthworms. The first question is, "Why are earthworms important?" The second question is, "Knowing structure and function, what are the earthworm's needs and adaptations for their environment?" The third question is, "How can earthworms be used to address the problem of excess waste in society?"

Students have previously learned about the animal kingdom and all of the phyla it encompasses. They know that earthworms belong to the animal kingdom because they are multicellular heterotrophs with specialized tissues and organs, whose cells lack cell walls. They understand that all animals have adaptations that help them survive in their environment. In the fall, they had a brief exposure to the three phyla of worms and can identify the characteristics that are unique to each phylum. They know that earthworms are members the phylum annelida because they have segmented bodies.

Students have learned about the phyla of the animal kingdom primarily through observations, mini experiments, projects and reflective and creative writing. They are familiar with discussing their ideas in class. They have not had a formal opportunity to participate in an experiment using the scientific method. The reason for this is that their science education in this district is not taken seriously until the sixth grade when it is taught as a core subject, not a special. I have spent the better half of this year helping the students learn to make simple observations, to learn from observation, to accurately read for information, and to think about cause and effect. I think the students are now prepared to take on the challenge of using those scientific processes and leaming the scientific method.

I chose to have the students explore earthworms for this unit because their inexperience with earthworms has led to a lack of appreciation of them. Unlike kids during my childhood, these students have not had the opportunity to touch, play, and observe the wonders of earthworms. They never had a chance to stop and think about what the world would be like without earthworms. The students know I love earthworms and are curious to find out why.

Another way I plan to keep my students engaged with this unit is to show them how earthworms are important to them, the school, and the community. I plan on doing this by making vermi-composting a student council issue. My students are very interested in helping the student council make our school a better and more important place. This class spends a lot of time finding new challenges for student council. With the aid of our class representative, vermi-composting will

be presented as an idea student council has for recycling food waste, but they need more information. My students will think that they are the "Chosen Ones" for the job!

To start this unit, I want the students to feel comfortable with handling and observing earthworms. This is important because I know many of them think earthworms are dirty, disgusting, and untouchable creatures. I will start off by modeling worm handling and showing them that the worms are harmless. I will give each pair of students a worm to observe. The students will learn from their observation and discussion. In pairs and with the class, we will discuss their observations. In order for the students to remember their observations, I will have them record their information on various lab sheets.

I set the classroom up in tables of four. This way they can discuss their ideas in small groups. During part of this unit the students will be researching, using Internet websites, to discover positive, negative, and interesting information about vermi-composting. They will also be reading for more information about how to make worm bins. Researching in groups of four will facilitate the process by allowing students to gather more information quickly. For many of the experiments, they will be working in groups of two. I tried to pair the students according to ability and achievement (one high and one low in each pair). This way students can guide, help, and learn from each other. Before and after all of the research and experiments, there will be whole class discussions about their learning. The discussions prior to each activity will help engage student learning. The whole class discussions after each activity will be to elaborate and extend student learning.

At the end of this unit, I anticipate my students will have a new view of earthworms. I not only expect them to discover the importance of earthworms, but also recognize that earthworms should be treated with respect as all other creatures in the animal kingdom.

Daily Log #1

Date: 31 January 2002, Lesson length: 45 minutes

What did you expect students to learn during the lesson? Today, I wanted to introduce and motivate the students about the topic of earthworms. I wanted them to think back to September, when we studied the three phyla of worms. I wanted to know how much they remembered, and I also wanted to know if they knew anything else about the topic of earthworms. Additionally, I expected the students to generate questions they have about the topic. During the class discussion, I slowly focused the students on the essential questions for the unit on earthworms, which are: knowing structure and function, what are the earthworm's needs and adaptations for their environment? Why are earthworms important? How can earthworms be used to address the problem of excess food waste in society?

Describe the instructional strategies, learning activities and resources used by you and your students during the lesson. To organize the students' thoughts, I gave them a worksheet about what they knew about worms and what they wanted to know about earthworms. I gave them ten minutes to think and write on this topic. While they were writing, I circulated around the room a few times and encouraged the students to write as much as they could.

After they finished writing, we had a class discussion about what they knew and wanted to know. I wrote their notes on the board and the students added information to their paper when it was appropriate. Because they were generating their own questions about worms, they felt they had ownership of the unit. I was able to focus many of their questions to fit one of the essential questions I have for this unit. For example, one student asked, "How do worms eat?" and another student inquired, "Can worms see?" After many of the senses of worms were inquired about, I let them know one of the goals for this unit was to understand how worms sense their environment and why their senses are important.

To conclude the class, I spent some time engaging the students with some interesting and fascinating facts about earthworms that would not be addressed in the unit. For example, I made a six-foot interactive earthworm for this unit and they wanted to know if some species of worms were capable of reaching that length. They were intrigued.

Describe how you monitored students' understanding of the lesson's main concepts and what you found. When I was circling the room, I was glancing at students' notes. If I saw them writing something untrue about worms in the "know" column, I encouraged the class to only write facts they were absolutely sure of. I also told them if they weren't so sure of the fact, to write it in the form of a

question in the "want to know" column. I will look over their sheets to make sure I have caught all of their misconceptions. For example, a few of the students were not clear about what type of worms we are studying and were confusing their facts with flatworms and roundworms. I will be sure to make notes on their papers to reconsider their knowledge of earthworms.

Engaging the students in a discussion of what they knew and wanted to know about worms, helped me understand how much they already knew about the topic. This helps because I will not need to spend much time reviewing already known information. I was very surprised that the students were using vocabulary words from the start of the year. When this occurred, I asked for volunteers to explain the vocabulary word. By asking for a show of hands of who knew what each word meant, I was able to see how much the class knew.

Throughout the discussion, they seemed focused on the topic. Without asking or telling, they were writing the information I was writing on the board. They had a lot of questions, and they were eager to find out the answers.

Describe how you accommodated student' learning needs during the lesson, and how you plan to adjust your teaching for the next lesson, if necessary, based on the students' learning today.

While I was asking about what they knew and wanted to know, I was very careful to call on as many students as I could. This was very important to me because I wanted the students to feel responsible for their learning. Although many of the questions they asked were already planned to be discovered in the unit, I still encouraged them to think of as many questions they could. I will remind them in future lessons that many of their questions will be investigated. Hopefully, this will keep their interest and build their learning.

My biggest problem with the activity was that it wasn't active enough. Because this class is at the end of the day, many of them are worn down after six classes. I need to make sure my lessons are little more interactive to keep attention. I think larger class discussions are harder for them to maintain interest than by working in smaller groups. Abbreviating this exercise could also be a good idea. I understand there will be a future need for class discussions, but I want to focus more time working in smaller groups, where each student might feel more encouraged to participate more often with more energy. I also need to work on making sure, regardless of the situation, calling students' attention as soon as they have drifted.

Student #3 1/31

Student #3

Wondering about Worms

Welcome to the wonderful world of earthworms! Before we start, I would like to know what you know about earthworms and what you would like to know about earthworms. Below, write your responses.

I know that worms....	I want to know... (Who? What? Where? Why? When? How?)
1. they bury themselves in the dirt	1. What do earthworms eat?
2. are good for your garden	2. Where are they found?
3. When cut in half they regenerate into 2 worms	3. Where are they not found?
4. are slimy and wiggle	4. Why do they help a garden?
5. Swerm around to move	5. How do they help a garden?
6. have a segmented body	6. What could kill a worm?
7. are heterotrophs	7. What are some parts of their body?
8. invertebrates	8. What is the scientific name of their phylum?
9. round bodies	9. How long do they live?
10. are multicellular	10. How do they digest their food?
11. belong to the animal kingdom	11. Do they hibernate?
12. Eat dead plant and animal matter	12. Can they survive in cold places?
	13. Could they swim?
	14. what do ~~you do~~ they give the soil?

Good Memory!!

Wow! You have a lot of questions! If we don't answer them all, please feel free to do some research on your own for extra credit!